

# PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

# PCT

To:

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26. Mai 2003

## NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing  
(day/month/year)

23 -05- 2003

Applicant's or agent's file reference

51154 WO

**FOR FURTHER ACTION** See paragraphs 1 and 4 below

International application No.

PCT/IB02/04162

International filing date  
(day/month/year)

10-10-2002

Applicant

Nokia Corporation  
et al

1. ☒ The applicant is hereby notified that the international search report has been established and is transmitted herewith.

**Filing of amendments and statement under Article 19:**

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

**When?** The time limit for filing such amendments is normally 2 months from the date of transmittal of the international search report; however, for more details, see the notes on the accompanying sheet.

**Where?** To the International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland  
Facsimile No.: (41-22) 740.14.35

TH03:230703  
et al

For more detailed instructions, see notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

3. ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

☐ no decision has been made yet on the protest: the applicant will be notified as soon as a decision is made.

4. **Further action(s):** The applicant is reminded of the following:

Shortly after 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within 19 months from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).

Within 20 months from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the ISA/  
Patent- och registreringsverket  
Box 5055  
S-102 42 STOCKHOLM  
Facsimile No. 08-667 72 68

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Authorized officer

Monica Norlin

Telephone No. 08-782 25 00

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>51154 WO</b>	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;"><b>FOR FURTHER ACTION</b></div> <div style="font-size: small;">see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</div> </div>	
International application No. <b>PCT/IB 02/04162</b>	International filing date ( <i>day/month/year</i> ) <b>10 October 2002</b>	(Earliest) Priority Date ( <i>day/month/year</i> )
Applicant <b>Nokia Corporation et al</b>		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

2. ☐ Certain claims were found unsearchable (See Box I).

3. ☐ Unity of invention is lacking (See Box II).

4. With regard to the title,

☐ the text is approved as submitted by the applicant.

☒ the text has been established by this Authority to read as follows:

A sound generating apparatus, a mobile electric device and a system for generating sound .

5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.

☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☐ None of the figures.

## Box III TEXT OF THE ABSTRACT (Continuation of item 5 of the first sheet)

A sound generating apparatus is provided. The apparatus comprises a first cavity (110), a second cavity (120) and an electro-mechanical transducer (100). The electro-mechanical transducer (100) is employed to emit sound waves into the first cavity (110) and the second cavity (120). A further third cavity (130) is additionally comprised in the apparatus. This third cavity (130) is connected to both the first cavity (110) and the second cavity (120) via a first passage (115) and a second passage (125) both being of individual pre-defined shape and dimensions. The first passage (115) serves as a sound waves passage allowing sound waves of the first cavity (110) for passing to the third cavity (130). The second passage (125) serves as a sound waves passage allowing sound waves of the second cavity (120) for passing to the third cavity (130). These passed through sound waves are mixed in the third cavity (130) and are allowed for passing through one or several outlets (150) for emitting sound (160) into an exterior of the apparatus.

Further, a mobile electric device is provided having integrated the above described sound generating apparatus and a system for generating sound of improved quality being based on components integrated in the above described sound generating apparatus.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB 02/04162

## A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04R 1/28 // G10K 11/02

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7: G10K, H04R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

SE,DK,FI,NO classes as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPO-INTERNAL

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5092424 A (W.P. SCHREIBER ET AL), 3 March 1992 (03.03.92), figures 8,19,40B and text --	1-9
X	US 6389146 B1 (J.J. CROFT, III), 14 May 2002 (14.05.02), figure 4 and text --	1-9
X	US 2002061114 A1 (J.J. CROFT, III), 23 May 2002 (23.05.02), figure 4 and text --	1-9
A	EP 0336303 A2 (YAMAHA CORPORATION), 11 October 1989 (11.10.89), connecting ducts 8 --	7,8

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

\* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

21 May 2003

Date of mailing of the international search report

23 -05- 2003

Name and mailing address of the ISA/  
Swedish Patent Office  
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Facsimile No. +46 8 666 02 86

Authorized officer

Leif Vingård / MRo  
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**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

29/04/03

International application No.  
**PCT/IB 02/04162**

Patent document cited in search report			Publication date	Patent family member(s)	Publication date
US	5092424	A	03/03/92	AT 137904 T	15/05/96
				CA 2056566 A	04/06/92
				DE 69119376 D,T	14/11/96
				EP 0489551 A,B	10/06/92
				JP 2075778 C	25/07/96
				JP 5014988 A	22/01/93
				JP 7118834 B	18/12/95
				US 5714721 A	03/02/98
US	6389146	B1	14/05/02	AU 3978601 A	27/08/01
				CN 1408194 T	02/04/03
				EP 1256259 A	13/11/02
				US 2001024508 A	27/09/01
				WO 0162043 A	23/08/01
US	2002061114	A1	23/05/02	NONE	
EP	0336303	A2	11/10/89	JP 1254097 A	11/10/89
				US 4953655 A	04/09/90
				JP 1254098 A	11/10/89
US	5818942	A	06/10/98	NONE	